Slovak, Petr and Thieme, Anja and Murphy, David and Tennent, Paul and Olivier, Patrick and Fitzpatrick, Geraldine (2015) On becoming a counselor: challenges and opportunities to support interpersonal skills training. In: 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW'15), 14-18 March 2015, Vancouver, Canada.

On Becoming a Counsellor: Challenges and Opportunities To Support Interpersonal Skills Training

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ABSTRACT
Well-developed interpersonal skills are crucial for all social interactions. However, understanding how interpersonal skills are taught or learned, and how technology can play a part in this, is yet an under-researched area in CSCW and HCI research. To start addressing this gap, our research explores the learning processes of counselling students, for whom developing interpersonal skills forms a fundamental part of their university education. We followed an iterative process to gain an in-depth understanding of a specific counselling program in the UK, combining interviews and low-fidelity technology prompts. Overall, 26 participants comprising tutors, students and expert counsellors took part. Our findings first provide insights into the highly collaborative and social learning process of the students. We highlight the complexity of interpersonal reflection as a crucial process for developing counselling skills, and identify the challenges to learning that students face. Second, we build on this understanding to draw out empirically grounded design considerations around opportunities for technology innovation in this setting.

AUTHOR KEYWORDS
Relational Skills; Empathy; Education; Healthcare; Counselling Training; Reflective Design.

ACM CLASSIFICATION KEYWORDS
H.5.m. [Information interfaces and presentation]: Miscellaneous.

INTRODUCTION
The importance of interpersonal skills in our everyday lives has been widely acknowledged [8, 36, 12, 16, 35]. Interpersonal skills are particularly important for mental health professionals such as counsellors and psychotherapists. Indeed, it is the counsellors' interpersonal skill and competence—gained through education, training, and experience—that is considered one of the critical elements for the positive effects of counselling interventions [11, p.29]. However, thus far, no research has yet explored how digital technology could support counselling education, and the interpersonal skills training of students.

As a first step in this direction, this paper focuses on counselling students, for whom interpersonal skills development forms a crucial part of their university education and who have access to established training programs to support them in the learning of such skills. Our research aims to reach a deep understanding of the processes and challenges of how interpersonal skills are taught and learned in counselling; to outline opportunities for technology support for students' learning; and to offer specific examples of how some of these may translate into technology design. In this paper, we report on a study with students and tutors of an under- and postgraduate counselling program at a leading university in the UK over a period of 14 months. We use an iterative process based on a series of interviews and observations (see Table 1 for an overview), with the later phases including low-fidelity prototypes that were employed to deepen discussions with participants and to enhance both their and our understanding of opportunities for technology design in this setting.

We begin with a review of related work and describe how technology has been previously employed for supporting interpersonal skills learning in other settings. Following a description of our iterative research and design process, our findings are then presented in three parts. The first provides insights as to how counselling skills are learnt by the students, and how the learning is facilitated by professional counsellors as tutors. We particularly focus on the use of experiential and non-directive learning, and the importance of *interpersonal reflection* in the learning process, drawing out the *key challenges to learning* in this context. The second part then draws on this understanding to identify a set of four *design considerations* to support the development of counselling students' skills using technology. These include opportunities for (i) non-directively promoting students' reflection processes; (ii) helping in the co-construction of interpersonal interpretation; (iii) scaffolding constructive feedback; and (iv) facilitating iterative, multi-phase reflection over time. In part three, we build on these considerations to guide the development of a design prompt used to further explore and deepen our understanding of some of the identified challenges as well as possible design directions. In particular, the design prompt aims to support a core aspect of counselling students' training—

CSCW 2015, March 14–18, 2015, Vancouver, BC, Canada.

ACM 978-1-4503-2922-4/15/03 ...$15.00.
http://dx.doi.org/10.1145/2675133.2675190

'practice counselling sessions' by role-play with peers—by providing them tools that support students' reflection on this activity. We conclude by highlighting the complementarity of the interpersonal reflection process with previous works on reflection within CSCW and HCI communities.

This paper makes two important contributions. First, we provide a nuanced understanding of how interpersonal skills are taught in this particular counselling setting and outline the related challenges learners face. Second, we provide empirically driven design considerations for systems aiming to address some of these challenges, and support the learning of interpersonal skills more generally. In doing so, this paper introduces a novel context for technology design targeted at supporting the learning of interpersonal skills, arguing that this is an important but so far under-researched area in CSCW, with wider implications for other contexts in which social and emotional skills learning is relevant.

BACKGROUND

Counselling skills and education

Counselling is part of the psychotherapy profession, with several competing schools of thought that differ in the approach to client and philosophical background (cf. [10]). Interpersonal skills such as the abilities to deeply understand the other, give attention, reflect, listen, or paraphrase, are however at the core of counsellors' training, regardless of the chosen school or training model. In addition, humanistically oriented training such as the counselling program that was the focus of our research, emphasizes the Rogers' three core conditions of a therapist [30], which include (1) *deep empathic understanding*, when the therapist is 'so much inside the private world of the other that he or she can clarify not only the meanings of which the client is aware but even those just below the level of awareness'; (2) *unconditional positive regard*, during which the therapist experiences a 'positive, acceptant attitude toward whatever the client is at that moment', i.e, accepts the client without judgment or conditions; and (3) *congruence*, which points to a 'close matching between what is being experienced at the gut level, what is present in counsellor's awareness, and what is expressed to the client', i.e., full authenticity of the counsellor in the interaction [ibid, p. 115].

Approaches to the training of interpersonal skills in counselling have a long history, with a number of manualized training programs that are widely used in practice – such as the Human Relation Training [7], Micro-Counselling [21], Interpersonal Process Recall [23], or the Skilled Helper Model [13]. A large body of literature in psychology has also shown the effectiveness of each of these to promote skill acquisition over the last 30 years – see for example [16] for a recent summary and narrative meta-review.

However, there is a clear gap in the counselling literature around how students actually experience the learning process and which aspects they find most challenging to learn [6, 17]. Similarly, very little is known about how technology solutions could be mobilized to support students' learning in this regard.

	Research Phase	Methods	Participants and activities	Length Demographics	Participants' IDs
UNDERSTANDING THE LEARNING PROCESSES	Phase 1	Semi-structured interview	**Participants:** 5 counselling students **Activities:** • Discussed the main issues students encounter as part of learning • Identified areas to explore in next stages -- practice counselling sessions, and facilitating feedback **Aims:** Design inspiration; understand the basics of the learning process and the key challenges	4 females 1 male Length 45 min	S1-S5
	Phase 2	Observation	**Participants:** 4 expert counsellors, 8 counselling students **Activities:** • Observed practice counselling sessions led by expert counsellor • Observed (and recorded) reflection practices of both student client and expert therapist after the session **Aims:** Design inspiration; understand the practice counselling sessions, and students' reflective abilities	10 females 2 males Length 60 min	E1-E4 S4, S6 - S12
	Phase 3	Semi-structured interview Design prompts	**Participants:** 3 members of staff, 3 counselling students **Activities:** • Discussed how learning is scaffolded in class, particularly around practice counselling sessions • Followed by design prompts to envision potential of novel sensing and feedback support technologies **Aims:** Refine design considerations.	5 females 1 male Length 60 min	T1-T3 S11, S13 - S14
	Development of the design prompt for Phase 4				
DESIGN EXPLORATION	Phase 4 part 1	Practice counselling session Semi-structured interview	**Participants:** 6 students (3 pairs), each participating in both parts **Activities:** • Practice counselling sessions -- each student took part once as the client and once as the counsellor. • Observe and explore students' reflection practices on recorded counselling session. • Review and critique of the design concept presented through WoZ **Aims:** Confirm identified challenges and design confiderations	5 females 1 male Length 90 + 90 min	S13, S15 - S19
	Phase 4 part 2	Wizard of Oz Semi-structured interview			

Table 1. Outline of the iterative design approach – methods and activities for each phase

Technology and interpersonal training in other settings

A large body of work in CSCW and HCI has recently focused on technology support for social skills training for disadvantaged populations. Most of this work has supported people with autism spectrum disorders (see review by Kientz et. al. [25]), and in particular on children with autism with a view to promoting basic collaboration (e.g., [28]), core interpersonal acts such as eye-contact or turn taking (e.g., MOSOCO [14]), or self-reliance (e.g., [18]). Outside of the autism domain, researchers have looked at using Virtual Reality systems to support the training of people with anxieties such as Social Phobia (e.g., [26]), or video-based training of interpersonal skills for parents of children with behavior problems [36].

In contrast, design and research on the teaching and learning of interpersonal skills for non-challenged populations has so far received only limited attention. Existing work includes, for example, the early exploration of opportunities offered by virtual agents to augment the training of communication skills for medical students [22], inter-cultural communication training for US Army soldiers [9], and automated system to improve non-verbal behavior during work interviews [19].

However, none of these systems embrace the full complexity and mastery of interpersonal skills—such as picking up on subtle feelings and thoughts that might be hidden to the client[1] himself—that are needed and developed within counselling settings.

APPROACH (METHOD & PROCEDURE)

This paper presents findings from a series of interviews and observations that form part of an ongoing collaboration with a counselling degree program in the UK. We intended to better understand how interpersonal skills were taught and scaffolded in counselling training, and the challenges that this may entail generally and for technology design more specifically. To this end, we took an iterative, four phase research approach, with each of the stages being analyzed and informing the next (see Table 1 and below for more details). Overall, 3 teaching staff, 4 expert counsellors and 19 counselling students took part in the various research activities. Altogether 22 females and 4 males participated. This reflects the ratio of females to males in the course. Generally, each participant took part in a single Phase only; with the exception of three students participating in two Phases each (S4, S11, S13). We also drew on our multi-disciplinary research team, comprising a counsellor, interaction designer, psychologist and computer scientists.

Phases 1-3: Understanding the design context

In the first phase, we conducted 5 semi-structured, 45 min long interviews with 5 counselling students. We explored how students experience their skills training with a particular focus on what they find difficult. Based on these interviews, we identified that so called 'practice counselling sessions' formed an integral, but also the most challenging part in their learning process. The second phase aimed to gain insights into some of the practical issues that surround 'practice counselling sessions', and to increase our understanding as to how expert counsellors and students reflect on these sessions afterwards. We observed a set of eight practice counselling sessions that involved overall eight students and four expert counsellors (approx. 20 min for each session and 40 min for reflection). Our analysis of these initial two phases led to first ideas for a potential technology design. This centered on the development of an online tool to provide students with a wide range of opportunities to reflect, annotate, and receive peer feedback on practice counselling sessions.

The third phase aimed to elicit critique and comments on our initial ideas, and to gain a better understanding of how such a technology solution would fit into existing learning practices. We conducted semi-structured individual interviews (60 min) with three teaching staff and three master students. Each interview was divided into two parts: During the first, we asked participants to describe their experiences of how counselling skills are taught and practiced, focusing specifically on how students work with recordings of their practice counselling sessions, and their previous experiences of technology use as part of this process. During the second, we then presented our interviewees with a series of design prompts in the form of post cards that visualized different ideas for potential sources of *feedback* (e.g. by tutor vs. other students; opportunities for video annotations; ideas for automatically generated feedback on the interaction dynamic between conversation partners); and offered examples of certain *modalities* for capturing such information (e.g. 1st or 3rd person camera perspective for video recordings; use of a smartphone app vs. physical buttons for providing feedback; use of sensor devices).

[1]In mental health contexts, patients with mental health problems are referred to as clients.

Phase 4: Translating identified challenges into design

Our findings from Phase 3 enabled the refinement of some of our considerations for the design, leading to the development of low-fidelity design prompts for Phase 4. This fourth phase consisted of interviews exploring the ways in which students reflected on their skills practice in greater depth, and also provided an initial, Wizard of Oz- style testing of our low fidelity prototype. Three pairs of students joined discussion with the researchers, each on two separate days. During the first meeting (90 min), we asked each pair to run two practice counselling sessions with their partner (so that each student took once the role of the client and once of the counsellor) and then interviewed them separately. As part of the interview, we invited the students to use the video recording of their session to talk us through their usual reflective processes. This led to a set of 6 interviews and 6 practice counselling sessions. For the second meeting (90 min), each student would individually be invited to discuss their experiences with our design prompts and to share their ideas for technology design aimed at supporting their learning process. This phase is described in more detail in the Design Led Exploration section on p. 7.

Analysis

All collected data from Phases 1 to 4 underwent a two-stage analysis process, whereby the data of each phase was at first analysed individually (to inform preparations for subsequent phases), and then revisited as a whole once the data collection was completed. Our final data set therefore encompasses all audio-recorded interviews, which were carefully transcribed and then included into a systematical thematic analysis following the approach by [5]. To this end, two of the researchers closely familiarized themselves with the data to identify and systematically search for (reoccurring) themes. Identified themes were then coded and higher-level categories developed. Our findings present the key themes that evolved through this analysis. To protect anonymity, participants are referred to by using an abbreviation of their role such as a T for teaching staff or S for student, followed by a participant number.

PART 1: UNDERSTANDING THE LEARNING PROCESSES

This section presents our findings and understanding of the current teaching processes that mediate learning of interpersonal skills for student counsellors, building mainly on the data gained from Phases 1-3. These findings complement the existing literature in two important ways. Firstly, they provide a nuanced understanding of the fundamental approaches

shaping counsellors' learning in the setting of this course. Secondly, the interviews highlight how students' learning is based on a set of social reflection practices around the practice counselling sessions with peers.

Fundamental learning practices

Our interviews with staff and students emphasise several fundamental learning practices that were used throughout their learning and underplayed all interactions within the course.

Experiential, non-directive learning

In agreement with the literature [30, 16, 17], both students and tutors understand the learning process as (a) fundamentally based on tutors' on-going modelling of counselling skills (e.g. being empathic, congruent, respectful to other's experiences) in all their interactions with the students; and (b) strongly shaped by person-centered counselling values of *non-directiveness*, *experiential learning*, and a *focus on the 'here and now'*. In particular, both students and tutors referred to the non-directive approach, describing its evolution from a core belief that people learn best if they feel they are understood and that their perspectives are valued by others; rather than simply being told what to do. As such, the learning processes were described by teaching staff as designed to help students directly experience what they learn about, and to deeply engage with and reach new insights about themselves through reflection – helping them to *"push the edge of their awareness"* (T1).

Discomfort as a cue for learning

In addition, teaching staff regarded experiential learning to only happen when students are *"willing to come out of their comfort zone"* (T2). This is particularly important due to their belief that, if one is to learn, *"there needs to be a dynamic moment of feeling off-balance, like a waking up moment"* (T2), during which students learn. This highlights the need for enabling, at least to a certain extent, uncomfortable experiences to invite important processes of reflection and thereby the development of interpersonal skills. However, the teaching staff as well as the students frequently emphasized how such interactions had to be facilitated within a 'safe space', where confidence and trust could develop among the students. This need for a safe space and mutual respect was also manifested in a 'learning contract' that all students and tutors agreed to, and breach of which would be severely reprimanded.

Learning in stages

Similarly to the other counselling training programs (e.g., [13, 23]), the tutors frequently described in the interviews how they structure activities across the study program to stage the learning of counselling skills. Their goal entailed that students started their training by developing deep self-awareness and reflection abilities, scaffolded for example through sessions that aimed to support students to re-live strong feelings (e.g., shame, loneliness, loss). This was followed by rehearsing core interpersonal skills such as attentive listening, understanding or paraphrasing the other. These skills are deliberately practiced in 'isolation', without being connected to other aspects of the interaction. Only then the students would move onto the key part of the training—practice counselling sessions—where the interpersonal aspects of counselling skills were developed, tried out, and fine-tuned before the students were able to embark on interactions with real clients as part of post-training placement (see Figure 1).

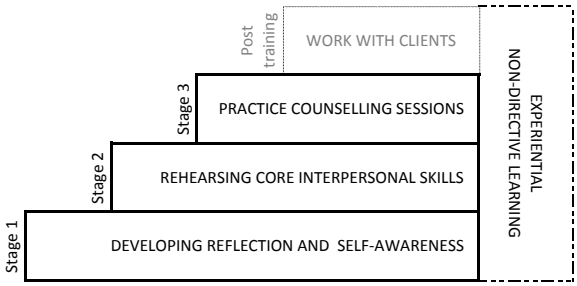

Figure 1. A diagram of the stages in student counsellors' training

Practice counselling sessions

Practice counselling sessions were described as the crucial stage where interpersonal counselling skills are taught in context. Such sessions took place in a 'triad', where three students took on the role of either a 'client', 'counsellor' or 'observer'. During the practice sessions, the student in the role of the 'client' was encouraged to talk about an existing issue they face, and the 'counsellor' would attempt to counsel him or her. The 'clients' were expected to choose something that felt important to them, but was not overly sensitive. Frequently however, students reported how 'clients' would bring quite intimate topics to these sessions, such as substance abuse in the family or serious marital and relationship issues. In the rest of the paper, we will continue to use the word 'client' as a shorthand for 'student in the role of client' unless explicitly stated otherwise; and will also use the analogous shorthand meaning for the words 'counsellor' and the 'observer'.

Participants explained how such practice sessions would be scheduled regularly (e.g., weekly) and that the sessions lasted between 5-20 minutes, with the duration increasing over time as students' experience with the activity develops. Each session is usually followed by a feedback phase (10 minutes in duration), where the observer, and at times also the client or counsellor, would share what they had observed during the interaction. Occasionally, the tutors would join the triad as additional observers and providers of feedback. Moreover, the students commonly rotated in the roles they were taking, enabling each to practice their counselling skills in turn. Some of these triad sessions were further reported to have been video recorded (e.g. 3-4 sessions a year) but there were no other reported uses of technology. The key part of the learning for the counselling student was however described to occur *after* the practice session had finished, when the student would 'process' and reflect on their experiences.

Learning through interpersonal reflection

Reflection on practice sessions is vital for student counsellors' learning. Our interviews point to the reflection process as a complex, inherently social activity. The students aim to deeply understand how their own actions have affected the

client's thoughts and feelings, although these are generally not directly observable and need to be collaboratively established. This leads to a complex interplay between several types of reflection that combine a deep, personal reflection on the student counsellor's own experiences with the need for 'interpersonal reflection', drawing on a shared sense-making with others.

In particular, we saw three ways of how such reflection was currently scaffolded around practice counselling sessions: (i) students received *external cues* provided directly after the triad session; (ii) such feedback was then employed to support *self-cued reflection*, when the student reflected on their session repeatedly over time, often at home and alone; and (iii) reflection on selected sessions could be guided through *Interpersonal Process Recall*, which is a structured process to facilitate deep self-awareness of the counsellor.

In the remainder of this section, we draw out the benefits and issues with each of the three reflection practices, preparing the ground for a set of design considerations to support students' interpersonal reflection through digital technology. Overall, our analysis suggests that the existing scaffolding of students' reflection is geared to mainly support internal self-reflection of the student-counsellors, only marginally facilitating the sharing of important interpersonal perspectives that could be offered for example by the client student and the observer student or tutor, or that would focus on the dynamics of the counselling session itself.

External cues for counsellors' reflection

Students in the counsellor role highly valued hearing about the client's and observers' experiences of the practice sessions, even if these conflicted with their own perspective. Such external feedback then served as a valuable cue for their reflection. However, students also described how the current processes could be improved by facilitating a more detailed interaction with the client and observers after the sessions; as well as the need to further improve the quality of feedback provided by their peers.

Both tutors and students described how the 'observers'—i.e., peers and/or tutors watching the practice session—provide most after-session feedback. Observers are expected to give a specific kind of comments that are tightly bound to what was directly *"observed and seen in the practice session"* (T1). Tutor 3 has eloquently described it as 'noticing', saying *"I don't want them to make a judgement about whether it's right, wrong, helpful, unhelpful, but just noticing."* Both tutors and students emphasised how providing *constructive feedback* from the observers' position is a difficult skill to learn; and that the students frequently struggle with providing such concrete, non-judgemental, yet constructive feedback. The tutors considered the ability to give good, constructive feedback as an important part of students learning, as well as a method of assessing their development.

In contrast, clients' feedback was rarely elicited, despite the fact that it is felt by students as even more relevant than feedback from observers. This is understandable as counselling is *"all about the relationship with the client"* (S17) and, especially when *"you're not experienced, you don't know what the client's experience [was]"* (S3). However, even if client's did share their experiences, it was mostly only a very high-level overview summary of the session, not detailed enough to fully support more nuanced reflection on the counselling performance of the student in the role of the counsellor.

Finally, participants highlighted the qualitative difference between feedback from the tutors and peers. The students were often not satisfied with the feedback quality they receive from their peers; but also with the quality of feedback they are able to provide themselves when in the observer's role. The tutors were described as being more capable to help students pin-point areas for future development—an example of constructive feedback—as opposed to students comments being often described as much less specific. Some students particularly highlighted the lack of critical but constructive comments they would receive from peers. For example, students disliked the overly positive comments that are often shared among the group as *"even if it is genuine, I still hate it because I am not getting anything out of it"* (S13).

Self-cued reflection

Self-cued reflection is also an important part of the learning process, during which students repeatedly analyse their practice sessions by themselves. This mostly happened at home, especially if the practice session was video recorded. Both students and tutors saw the usefulness of such repeated, deep immersion into the session via video. This helps students unpick their session in detail and learn from both mistakes as well as accomplishments. While the students saw it as an opportunity to *"work deeply when you see the tape again and again by yourself"* (S6), they also described how there is a very limited support for further interaction with the client and observers during or after the self-cued reflection, although the inferences about the others' thoughts and feelings are crucial for students' reflective processes in this stage. This makes it very difficult for them to check whether their own assumptions about the client and observers' experiences are correct.

The following quotes provide an example of the level of detail in which students would reflect on their session and highlight the various aspects students generally paid most attention to.

> *(S15): "I noticed she said, 'That's a really amazing achievement', and there was just like a pause and the slight forcing of her saying she'd had an amazing achievement. [...] I found a pause and was able to say, 'I noticed that you did this. I just wanted to know if you noticed anything?' Then she thought about it and talked it though, and it turned out that she had some difficulty accepting that she'd had an achievement, because of various things that were to do with the support of her husband and stuff. [...] It gave her the option to change the flow of what she was talking about, to get a little bit deeper into acknowledging her own feelings, which is really important.*

> *(S17): [Watching the session is] all about concentrating on not what was said, but what I was doing, my reactions, what were the client's reactions, facial expressions. I thought they are very, very interesting to*

watch because a smile in the right place, or a frown, or a 'Mmm, mmm.' If the client goes, 'Mmm,' does that mean they are not quite understanding what I am asking, or saying?"

Both quotes illustrate how students generally paid attention to several interrelated aspects. First, we see a very detailed focus on their own and the client's non-verbal behaviour. While non-verbal behaviour is important also during the session, students often picked up on cues they have not noticed before revisiting the video.

Second, the focus on non-verbals was then combined with attempts to go beyond of what the client has said, and create a deeper understanding/interpretation of why they did what they did. For example, S15 has picked up on his client's subtle hesitations around accepting an achievement and used this to uncover a deeper issue they then spend the session talking about. Similarly, most of the students were using the video to continuously analyse and double-check if they had understood their clients well enough during the session; or if they had missed something crucial. Students always viewed their interpretations as tentative accounts of clients' experience that need to be verified. Such verification is however not a part of the current training processes.

Third, although noticing new aspects can be perceived as validation/clarification with advanced students when they watch the video (e.g., S15 or S17), it can also raise self-critical attitudes. This was particularly common for early students, as the video highlighted things they believed they had missed, or their own responses they thought they could improve. For example, speaking about the bachelor students, Tutor 3 said *"[T]hey always choose the worst bits and then beat themselves up. They never choose the bits that they do really well and show you that."* Balancing such self-critical attitudes seemed to be another important challenge for the students.

Fourth, counsellors often explored alternative ways of responding to a situation in their minds, especially after identifying a situation they were not happy with. Again, these required them to work with complex assumptions about the clients' possible responses and thoughts, but could not be sense-checked with the client later.

'Interpersonal Process Recall' (IPR) – guided reflection

Students are also taught a structured way of reflection, called Interpersonal Process Recall (IPR), as part of their normal learning process. IPR is a traditional technique developed by Kagan [24] in the 1970s, aiming to facilitate counsellors' deep reflection on, and awareness of, their own feelings and thoughts during counselling sessions – i.e., the focus is on their own self-awareness and experience of the sessions, not on the dynamic of the interaction as such. A brief description of the IPR process is below, see [23] for more detail. IPR draws on repeated viewing of a video recording of the session. The student in the role of a counsellor can stop the video at any time of their choice, often when they believe something important has happened. Another student or a tutor then asks the 'counsellor' a question from a list compiled by Kagan. The 'counsellor' then uses this to reflect aloud on what was going on for them at that time. If done according to the guidelines, this is a very long process – e.g., 8 hours of IPR for 1 hour of the videotaped session.

As this protocol was originally designed for analysing real-world counselling sessions, the client's view is not supposed to be shared, nor can the clients stop the video at moments they would like to discuss, although they might be present at the IPR session. However, the students saw this as overly restrictive to their learning and told us that for most of the sessions they facilitated (i.e., without the tutor present), the comments would be eventually shared by all involved. The tutors were aware and accepted that such adaptations of the IPR protocol happen, and indicated that they would be open to modify IPR such that it would also involve the client to a larger extent.

Effects of video-recording on reflection practices

The inclusion of the video recording markedly changed the perception of the practice sessions for the students. Tutors and students described how having the video was useful as it provided more opportunities to explore and reflect on their own practice in detail, regardless whether it was to support external cues, the students' own reflection at home, or IPR. Video is understood as providing 'evidence' and specificity to reflection. In other words, by having the option to stop and point out particular moments, it was perceived as providing specific, non-judgemental grounds for deep reflection on the part of the student counsellor.

While the students saw the video as beneficial for their learning process, students also told us that they initially felt conscious, vulnerable, and very uncomfortable about the video recording, although they eventually got used to it. Tutors were aware of these challenges for students, but believed that this was an important part of the learning process, and that the benefits outweigh any uncomfortableness whilst engaging in this process. For example, after giving an example of her own experience with video-recorded skills practice (as a student), Tutor 2 told us: *"As soon as you start to get the feedback and you begin to see, 'Oh my God, this is powerful. I'm really learning a lot about myself here', the equipment becomes an aid not an enemy"*.

PART 2: CHALLENGES TO LEARNING AND DESIGN

While the practices around the teaching and learning of counseling skills are effective, to the extent that students graduate as counselors, the previous section also outlined a number of challenges that suggest a potential for technology support.

Design considerations to support counselling training

Each of the three key reflective practices highlights particular facets that are crucial for interpersonal reflection, but each is, for pragmatic reasons, used independently in the current learning process. This points to opportunities for technology to combine and support all of these aspects of interpersonal reflection together, as well as to address some of the key challenges present.

In particular, the importance of external cues highlighted the need to include the client and observers in the interpersonal reflection process of the student-counsellor. Self-cued reflection highlights how counselling students process and learn from their practice sessions over longer periods of time, and thus do so mostly outside of formal learning settings (e.g., at home). The IPR then suggests the benefits of scaffolding reflection non-directively, for example by providing a structure for reflection while keeping the student-counsellor in charge to decide what to focus on and when; and also pointing to the importance of specificity and 'evidence' that a video recording can facilitate. We now outline four design considerations for systems aiming to support the learning of students' counselling skills.

(C1) Non-directive facilitation of the reflection process: We already brought attention to the limited scaffolding for interpersonal reflection processes, especially for the counsellors' self-cued reflection outside of the lessons. Technology supporting such reflection should empower students to reflect and make personal choices, rather than directively restrict their experience. Furthermore, designs should aim to facilitate localised reflection, i.e., tying the reflection and feedback to particular moments of the session to provide specificity and 'evidence'.

(C2) Support co-constructing of interpretation with the client: We saw the need for processes or technologies that facilitate a better access to clients' experiences for the student in the role of the counsellor during their reflection process. In particular, technology should facilitate interactions with clients (and observers) to allow counsellors to verify and sense-check the intricate assumptions they may make about their client's feelings, thoughts or behaviours. Further facilitation would be useful to support students in making their reflection work or felt experience more tangible, and thus more accessible for discussion.

(C3) Scaffold constructive feedback from observers: Providing constructive feedback from the role of an observer (or client) is understood as an important but difficult skill that students need to learn but tend to struggle with. In particular, students find it difficult to be concrete enough and link their comments to specific observations; or to provide constructive criticism instead of praise. Technology should aim to facilitate such localised, constructive (i.e., not only positive), yet non-shaming feedback from the observers, as well as support the observer's learning whilst giving feedback by presenting it for example as a valuable self-reflection exercise.

(C4) Support for iterative, multi-phase reflection: Our data suggests that interpersonal reflection requires a long-term process, combining periods of deep individual sense-making and reflection (including creating assumptions about others' experiences and states), with periods of interactions where such thoughts are shared, checked and discussed. Technology should aim to scaffold such a series of in-depth engagements between the client, the counsellor and the observers, including enough time for deep reflection in between. It is also important to respect and design for the limited time available for the students (as opposed to a full IPR process).

PART 3: DESIGN-LED EXPLORATION

In response to these identified design challenges, we developed a series of low-fidelity design prompts for Phase 4 of our research. These were designed to be used by students in conjunction with the video recordings of their training session, which we recognized as a valuable source for reflection. Our aim was to explore and triangulate the design considerations in more depth, and to invite further thoughts and input on the potential design functionalities from the students.

Each of the design prompts explored specific ways of supporting one or more of the design considerations. For example, to probe the possibilities to promote constructive feedback (C3), we presented the students with draft interface designs that would allow the observers to indicate the moments they 'notice' in real-time when observing the session (e.g., through a simple mobile phone application time-synced with the video-recording), also scaffolding the type of feedback observers can then provide to the counsellor (e.g. by suggesting pre-formulated sentence starters such as "*I felt _____ when I saw _____ happening.*"). Other prompts explored how students could use the system to send and request feedback on specific parts of the video from each other (e.g. choosing and commenting on a particular video segment).

In the scope of this paper, we only focus on one of the design prompts—the AffectSlider—in detail. We chose to highlight the AffectSlider as it explores possible design directions to most of our design considerations (C1, C2, C4) in a single tool, and embodies many of the key design mechanisms that can support interpersonal reflection in this space.

Developing a design prompt: The AffectSlider

Drawing on the difficulties students indicated with the existing practices around reflection, such as the cognitive overload when reflecting and the time inefficiency of IPR process, we started exploring other mechanisms to indicate and track certain emotional responses that may support students' understanding of the interaction during the training. The design of the AffectSlider was inspired by our conversations with students and tutors in Phase 3, in which we explored different modalities as to how feedback on a training session could be provided or received, including examples of physical as well as digital push-buttons, dials and sliders. We were also inspired by literature in cognitive psychology using physical dials to indicate the positive and negative affect felt by experimental participants [31].

The final version of the AffectSlider, as presented to the students, was an interactive mock-up prototype that takes the form of a virtual 'slider' on a single line with two poles, where poles can represent any concept that students wish to explore, e.g., from non-empathic to empathic (see Fig. 2). The student can indicate their in-the-moment experience while they watch a video-recording of their session, by manipulating the slider position moving their PC mouse. The sequence of such slider position changes is recorded and time-stamped to tie the changes to the respective time in the video, and can be thus later presented as an overview graph (see Fig. 3).

Figure 2. Indicating in-the-moment experience with the AffectSlider.

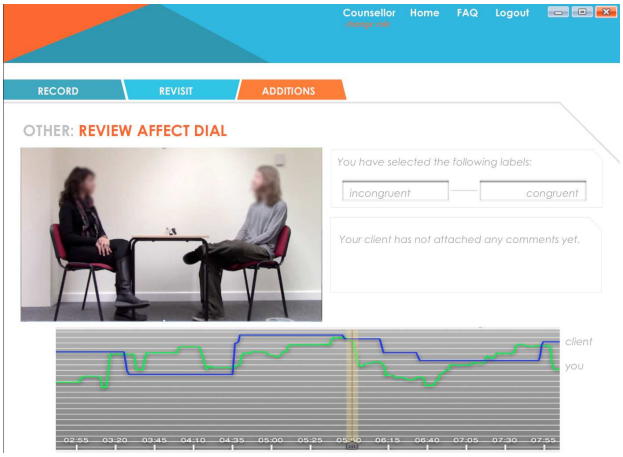

Figure 3. Visualisation of the AffectSlider traces, connected with the video, as presented during the Wizard of Oz (Phase 4).

Our design envisioned that such a form factor would support novel reflection practices for the students in several ways. First, asking students to choose a specific concept to analyse could help them prioritise and make conscious decisions about which aspects of their counselling skills they want to specifically focus on, reducing the cognitive overload. Moreover, we expected AffectSlider to promote sustained attention, as the slider position is to be continuously changed according to felt experience. Visualisation of the resulting trace once it has been indicated could further support localised reflection, as it is tied to the video-recording. Altogether, AffectSlider was therefore expected to non-directively promote focussed reflection (C1).

Second, we thought that use of the AffectSlider could directly promote students' perspective taking and help explore the differences in experiences between client and counsellor. For example, the student can decide to use AffectSlider to indicate not their own experience, but their assumptions about how another person feels – e.g., we asked the students in the role of the counsellor to indicate how they believe their client felt as part of Phase 4. Moreover, once such an AffectSlider trace is created, it can easily be presented to the client for comments, or compared with the client's own AffectSlider trace of the same concept, making it a tangible visualisation of the reflective process. Finally, the time required to provide feedback with AffectSlider equals only to the time needed to watch the part of the session to be rated. This is quite time efficient, especially when compared to IPR or similar procedures, and could allow for iterative engagements. As such, we hoped that interaction with the AffectSlider would promote co-construction of interpretation through sharing and discussion of felt experiences with the client (C2), and do so by facilitating an iterative, multi-phase engagement with the recorded data (C4).

Exploration of AffectSlider with students

For the exploration of the AffectSlider functionalitites we prepared a specific sequence of interactions for students to perform, designed to test our assumptions about the effects the use of the AffectSlider could have on students' reflection. In particular, we aimed to explore the combination of explicit perspective taking (i.e., counsellor indicating their assumptions about client's experience) and facilitated sharing of experience between the student-client and counsellor via the AffectSlider trace.

Specifically we asked the counsellor at first to decide on a concept they would like to ask their client to feedback on using the AffectSlider (e.g., how anxious the client felt). The counsellor also chose a 5-10 minute long fragment from the session they've just finished, to specify which part of the session the client was asked to watch and give feedback on. We then passed this information to the client, who was in a different room, and who used the AffectSlider to indicate their experiences regarding the chosen concept on that video fragment. Independently, the counsellor rated the same fragment and concept, but *from the perspective of the client*, e.g., indicating how anxious he/she thinks the client was at moment. The two traces were thus recorded independently, but when brought together, this allowed the counsellor to compare the AffectSlider trace visualising their own assumptions of how, e.g., anxious the client was, with the trace indicating the felt anxiety directly by the client.

We then presented the counsellor with the overview of both AffectSlider traces and let the counsellor explore and compare these. The traces were connected to the video recording and counsellors could easily move to and review moments in the session they found interesting (see Fig 1). We recorded such interaction with the AffectSlider for each of the six practice counselling sessions in Phase 4. The following presents the findings from this process.

Students' responses to the AffectSlider

All six students found the slider interaction understandable, and were able to choose a concept they would like their client to feedback on. The concepts ranged from selecting one of the core Rogers' conditions such as felt empathy or congruence, to more specific concepts such as 'positively to negatively challenged' or 'helpful to unhelpful facilitation'.

Students shared with us that—by limiting their attention to a single facet of the experience and continuous manipulation with the slider—the interaction with the AffectSlider often facilitated a state of heightened awareness just for behaviours around the selected concept (without distraction by other aspects). This was described as a novel and pleasant experience for many students. For example, S15, who was indicating 'challenging responses', explained: *"I'm not really focussing on any of that [other aspects], I'm just focussing on the flow into whether I'm going to challenge or not and when there's a right pause, or whether I've missed it. That's quite interesting, just to go through that experience and be so focussed."* A downside to this extremely focussed attention was that the choice of the concept became crucial, and some students found it difficult to decide which of the many complex concepts they are potentially interested in should be chosen for detailed analysis. This suggests that the AffectSlider would require (but thus also promote) repeated passes through the video. Moreover, students reported that despite the sustained focus, other interesting aspects of the interaction could, momentarily, come to their attention. Students then wanted to have the option of leaving a marker in the video (e.g. by double clicking the mouse) to be able to easily come back to that point of the video once the AffectSlider exercise was completed.

Importantly, comparing their own and the client's trace helped students identify very specific moments they wanted to explore further. These were particularly moments where the two traces did not match (e.g., the client indicated a sharp position change of the slider while the counsellor did not) and thus the counsellor felt to may have misunderstood the client. Once the students returned to such moments (by re-watching the relevant part of the video), we saw them often re-frame their previous understanding of the situation. For example, S18 asked to revisit a particular fragment where her client indicated a drop in perceived helpfulness, but S18 did not. After revisiting the video, she shared: *"I think what happened there is [that] all I did then in my response was just copy, paraphrase of what she said, but that's it; I didn't do anything with it, I just reflected it. I think [she] needed a little bit more of something from me. [. . .] If I'd just watched that back, I wouldn't have picked that up."*

In other cases, for example when the traces did match remarkably, this served our students as a useful validation, i.e., that the assumptions they had were consistent with what the client experienced – which is something the students said they didn't have access to before. Similarly, the overview mode at times highlighted particular moments to look at for the counsellors even before seeing client's data, i.e., the overview showed some aspects they were not aware of when doing the reflection-in-the-moment.

However, relying entirely on the AffectSlider data could bring the risk of mis-interpretation of the mismatch or similarity of the traces. Acknowledging such a risk, students also often suggested that such pinpointed moments and the re-framing they made are something they would have liked to take further and discuss with their client face-to-face, as the next step of the learning process. On a similar note, students highlighted concerns related to potentially hurting the feelings of the counsellor after the feedback is exchanged, e.g., if the client was to indicate they perceived no empathy in a particular moment. While no such occasion arose during the six interactions we recorded, there is a clear need to ensure mechanisms are in place to safeguard practice; such as the opportunity to discuss the indicated traces in person soon after exchanging and/or opportunity to provide more detailed written explanations for parts that might perceived as hurtful.

DISCUSSION

Learning how to develop sophisticated interpersonal skills is a critical but challenging part of studying to be a counselor. Participants in our studies painted a nuanced picture of their learning processes, and the importance of interpersonal reflection practices to learn counselling skills. In this section, we discuss how these findings might inform the design of systems to support learning of interpersonal skills in counselling settings.

Specifics of 'interpersonal reflection' in counselling

Our findings show how learning of interpersonal skills in counselling is an inherently social endeavour, building on a complex interplay of interpersonal reflection processes around practice counselling sessions, and involving multiple actors. In other words, we saw that although the student in the role of a counsellor might do most of the reflection work, the reflection process cannot be fully completed by any one participant alone. The client and possibly observer(s) need to partake and share their perspectives to jointly co-construct the interpretation of the session, and this is needed for the learning to take place. As such, the focus on the 'interpersonal' comes in several variants – the activity itself, the skills that are learned and thus reflected on, and the interactions between the counsellor, the client, and observers in the processing stage after the practice session. As highlighted by the suggested design considerations, systems aiming to facilitate counselling learning will need to take into account, and provide support for, all these aspects of interpersonal reflection.

This presents an interesting reflection case that is complementary to existing reflection research in CSCW and HCI. The majority of such work aims to cue or facilitate reflection on individuals' reflection (e.g., [32, 34, 20]) supporting people to become more thoughtful about their everyday experiences. In contrast, the understanding of reflective processes as a collaborative or shared social activity is relatively rare [15, 29, 37], and is arguably an area ripe for more detailed study [2]. Further exploration of the interpersonal reflection processes, which we saw as crucial for counsellors' learning, could thus contribute to this increasing interest to explore technology support for social reflection, as a relevant part of learning and sense-making in other social situations.

Returning to the design consideration

Building on our experiences across the Phases 1-3 of this research project, we drew out four design considerations to support interpersonal reflection, which were then further triangulated in Phase 4 through a series of design prompts. We now return to these considerations to discuss the broader implications and opportunities for technology, using the experiences with AffectSlider to ground our analysis.

Non-directive facilitation of the reflection process

One promising option to non-directive facilitation is to support the learner in focusing their attention to specific aspects of the interaction. For example, the structure 'enforced' by AffectSlider—i.e., the need to choose and focus on a single concept while watching the video—led to very deep and focused reflection, while keeping control over the content in the hands of the counsellor. Similarly, the ability of technology to allow for easy re-structuring and novel viewpoints on data, such as the real-time indication combined with a post-hoc overview, can further support a focused reflection process. Moreover, prior HCI work (e.g., [27, 34]) suggest the possibility of using sensor or video-based data to provide people with novel cues for reflection and learning. Such cue-based support could again help to focus attention and empower students to explore novel interpretations of their and others' experiences. In particular, the recent advances in detecting relevant social signals such as non-verbal mimicry [3, 38] could be a promising avenue to explore in future work.

Support co-constructing of interpretation with the client

We saw that understanding of others' perspectives and feelings is a core aspect of counsellors' learning, but that the counsellor is unable to reach that understanding without including the others into the reflection process; this is an endeavour that often requires large commitments from all involved. As one possible approach, by helping make participants' reflection work or felt experience more tangible, technology could support counsellors in identifying, challenging, and testing their own assumptions about the other's experiences. For example, the perspective taking exercise with the AffectSlider not only provided a visible trace of a particular facet of the client's lived experience, but also allowed the counsellor to visualise and directly compare her own understanding of what the client could have been feeling with the clients own indication as to how they were feeling in, or experiencing, the interaction. While such a single slider trace cannot encompass the full complexity of the counselling interaction (a problem likely shared by any technology tool in this space), it showed potential for the counselling student to either 'validate' their understanding or pinpoint specific moments where misunderstandings were more likely to occur. Once such specific moments were found, we have observed during phase 4 how the students used these to improve their understanding of the interaction. Moreover, the students explained how such moments could provide good grounding for further discussion, and thus help the counsellor and their client to jointly re-frame their interpretation and understanding of the interaction.

Scaffold constructive feedback from observers

We suggest that technology can help scaffold the 'noticing' process for the observers, supporting them in providing more specific and non-judgemental feedback, but also facilitate the learning of their feedback-giving skills. For example, mobile or wearable technology could be used to help student observers ground their observations to specific moments within the session on-the-fly, such as allowing them to 'mark' or 'label' situations they would like to comment on while observing the session. Not only would this be a useful, grounded feedback for the counsellor, but also the act of indicating such situations could provide material for reflection and learning on the part of the observer.

Moreover, the distancing nature of technology, especially when used to provide feedback remotely, could be utilised to facilitate more 'honest', constructively critical interaction. For example, we would expect observer feedback given through AffectSlider to work this way, as it: (i) asks the observer or client to non-verbally indicate their own personal experience, and as such it is not felt directly as a judgement of the counsellor; and (ii) the act of requesting such information alone includes an implicit 'permission giving', as the counsellor is the one to select the concept in question as well as the part of the session to be looked at. Nevertheless, designs using such mechanisms need to put safeguards in place (e.g., allowing the counsellor to give 'feedback on feedback' back to the observer) to ensure that the interaction stays constructive, and that any misunderstanding or hard feelings are promptly talked about and resolved.

Support for iterative, multi-phase reflection

Asynchronous interaction, such as various forms of focussed 'requests for feedback' sent by the counsellor to the client, could prove particularly useful to support the long-term, multi-phase interpersonal reflection process. Such asynchronicity allows the individual students to engage with the sessions at the time of their choice, and provides an opportunity for the counsellor to carefully select the parts of the session they are particularly interested to focus on. We envision that such a series of asynchronous, iterative interactions would help identify a set of key discussion points, leading to a more in-depth and focussed face-to-face engagement to jointly interpret and discuss differences in viewpoints. This is again exemplified in the interaction we staged as a part of such a process with the AffectSlider, where the counsellor first reflected to select both the concept they were interested in as well as the part of the session to be looked at by the client. Once the request had been fulfilled (a relatively easy and quick activity for the client), the counsellor received useful data to further guide their own reflection, often leading to a focussed set of points they would like to discuss with the client in more detail at a face-to-face meeting.

Broader implications – social skills learning

The lessons from the counselling context can also inform and inspire a broader agenda looking at social and emotional skills learning in other settings, such as training for medical staff [1, 35], leadership [4], and increasingly also school education [12]. These are all areas where development of interpersonal skills is also crucial, and where similar sets of learning approaches are being used, including experiential learning and the need for interpersonal reflection [40]. As specific examples, curricula aiming to teaching skills such as empathy, awareness of own and other's emotions, or perspective taking are increasingly rolled out across primary and secondary schools within the US [12, 39]. Similarly, there is an established need in the medical community for an increase in

support for training communication skills and empathic interaction for medical staff across all roles [1, 33, 35] – including students, practicing doctors, and nurses. As all these programs use very limited technology so far, this opens questions if and how CSCW and HCI could support the social and emotional learning in these settings, and whether the findings around the opportunities to support counsellors' learning here could serve as a good starting point.

Potential Limitations

The study described in this paper presents exploratory research aimed at gaining a nuanced understanding of existing counselling practices and to then inform technology design in an area novel to CSCW. To this end, our research activities involved counselling students and tutors from one particular degree program in multiple phases of research that built on each other, rather than attempting to provide a overview of practices across many such programs. We believe that this continued and more in-depth involvement with our participants enabled us to gain rich insights into the particularities of this design context and the associated challenges, which can inspire and translate to similar design contexts (e.g., as per the previous section). We further acknowledge that the majority of our participants were women, which might suggest possible gender bias in the interview data. While this cannot be disregarded, this ratio also reflects the approximate gender distribution of students in the counselling program we worked with. Moreover, we did not observe any difference in the responses to the interviews or design probes that could be directly linked to gender alone.

CONCLUSIONS

This work presents a first exploration into the role digital technology could play in supporting the learning of interpersonal counselling skills. We present a nuanced understanding into how such skills are taught as part of a humanistically oriented counselling degree program, highlighting the challenges to learning students currently face. These revolve mainly around the need to better support interpersonal reflection processes, which are crucial for the student learners. Drawing on our interviews, observations and the design prompt, we offer four design considerations for systems aiming to mediate such challenges. Overall, our findings point to the potential for technology to enhance and support the learning of interpersonal skills in counselling training, and possibly also other settings, and provide an important first step for future research in this direction.

ACKNOWLEDGEMENTS

We thank our participants for their time, support, and the deep engagement with which they took part in the design process. We would also like to thank Pengfei Zhang for his support with AffectSlider development; and Eva Ganglbauer and Francisco Nunes for their valuable comments on earlier drafts of this paper. Petr Slovák has been supported in this work by the Austrian Academy Sciences under the DOC Fellowship.

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